

Evolution of the 4f electron localization from YbRh₂Si₂ to YbRh₂Pb studied by electron spin resonance

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Abstract

We report on electron spin resonance (ESR) experiments on the Heusler alloy YbRh₂Pb and compare its spin dynamics with that of several other Yb-based intermetallics. A detailed analysis of the derived ESR parameters indicates the extremely weak hybridization, more localized distribution of the 4f states, and a smaller RKKY interaction in YbRh₂Pb. These findings reveal the important interplay between hybridization effects, chemical substitution, and crystalline electric field interactions that determines the ground state properties of strongly correlated electron systems. © 2014 Pleiades Publishing, Inc.

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